

REMARKS

INTRODUCTION

By this amendment, independent claims 1, 2 and 14 are amended by adding an adhesive layer between the substrate and the recording layer, and between the substrate and the printing layer. The amendment is supported throughout the specification, including the description in paragraphs such as the one on page 7 at lines 5 to 11, and those on page 16 at lines 2-19 of the application as filed.

Claims 3, 4, and 15 are amended for form only.

In accordance with the foregoing, claims 1-4, 14 and 15 have been amended. Therefore, claims 1-4, 14 and 15 are pending and under consideration.

CLAIM REJECTIONS UNDER 35 U.S.C. §103

(A) Related to Claim 1

The Examiner states on pages 3-7 (paragraph nos. 4 and 5) of the Office Action, that claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable for obviousness over Otomo (Japanese Patent Application No. 2000-011448) ("**Otomo**") in view of Ota (Japanese Patent Application No. 2000-030302) ("**Ota**").

The Examiner states on pages 7-8 (paragraph no. 6) of the Office Action, that claim 3 is rejected under 35 U.S.C. §103(a) as being unpatentable for obviousness over **Otomo** in view of **Ota**, and in further view of Arai et al. (U.S. Patent No. 5,020,048) ("**Arai**").

Applicants respectfully disagree with the Examiner especially in light of this amendment.

Amended independent claim 1 now recites:

"An optical disk consisting essentially of:

a substrate including a biodegradable resin or polyolefin resin;

a recording layer provided on both sides of the substrate;

an adhesive layer provided between the substrate and the recording layer; and

a release layer provided between the substrate and the recording layer,

wherein the recording layer has a base material layer including a non hydrophilic film."

Applicants would like to emphasize that amended claim 1, among other features, now includes “an adhesive layer provided between the substrate and the recording layer”. In contrast, such a feature is not disclosed or taught by **Otomo**, **Ota**, or **Arai**.

Furthermore, as a result of having such an adhesive layer between the substrate and the recording layer, the present invention can be produced by the lamination process; thereby the present invention can be easily mass-produced at a low cost. In addition, since the present invention is produced by the lamination method, heating treatment is not necessary during production process, and as a result, it is possible to prevent thermal expansion due to heat treatment, which leads to prevent warping of the substrate.

Otomo teaches an optical disk (1) comprising a base material (2), an optical recording material (3), pit parts (4), and a reflective layer (5). However, **Otomo** does not teach an adhesive layer provided between the substrate and the recording layer as recited in amended claim 1. Therefore, one having ordinary skill in the art would not have been prompted by the teachings of **Otomo** to arrive at the invention according to amended independent claim 1 that includes an adhesive layer. Thus, amended independent claim 1 and dependent claim 3 are patentable over **Otomo**.

Ota teaches an optical disk recording medium (1) comprising a substrate (2), a recording layer (3), a reflection layer (4), a protective layer (5), a film (6), and a hole (7). However, **Ota** does not teach an adhesive layer provided between the substrate and the recording layer as recited in amended claim 1. Therefore, one having ordinary skill in the art would not have been prompted by the teachings of **Ota** to arrive at the invention according to amended independent claim 1 that includes an adhesive layer. Thus, amended independent claim 1 and dependent claim 3 are patentable over **Ota**.

Arai teaches an optical information recording medium having at least a transparent substrate and a recording layer and capable of recording information by irradiating the recording layer, wherein a protective film having hygroscopic property is formed on a light incident surface of the transparent substrate. However **Arai** does not teach an adhesive layer provided between the substrate and the recording layer as recited in amended claim 1. Therefore, one having ordinary skill in the art would not have been prompted by the teachings of **Arai** to arrive at the invention according to amended independent claim 1 that includes an adhesive layer. Thus, amended independent claim 1 and dependent claim 3 are patentable over **Arai**.

When **Otomo** and **Ota** are combined, one having ordinary skill of the art still would not have been prompted to arrive at the invention according to amended independent claim 1 that includes an adhesive layer. Thus, amended independent claim 1 and dependent claim 3 are patentable over **Otomo** and **Ota** combined.

When **Otomo**, **Ota**, and **Arai** are combined, one having ordinary skill of the art still would not have been prompted to arrive at the invention according to amended independent claim 1 that includes an adhesive layer. Thus, amended independent claim 1 and dependent claim 3 are patentable over **Otomo**, **Ota**, and **Arai** combined.

As a result, the invention according to amended claim 1 is distinguishable over **Otomo**, **Ota**, and **Arai** individually or as any above-noted combination of **Otomo**, **Ota**, and **Arai**.

Applicants request that the rejection of claims 1 and 3 under 35 U.S.C. §103 for being obvious over **Otomo**, **Ota** and **Arai**, individually, or in combinations, be withdrawn.

(2) Related to Claim 2

The Examiner states, on pages 8-15 (paragraph nos. 7 and 8) of the Office Action, that claims 2 and 4 are rejected under 35 U.S.C. §103(a) as being unpatentable for obviousness over **Otomo** in view of Matsuishi et al. (U.S. Patent No. 5,972,457) ("**Matsuishi**") and **Ota**.

The Examiner states, on pages 15-16 (paragraph no. 9) of the Office Action, that claim 4 is rejected under 35 U.S.C. §103(a) as being unpatentable for obviousness over **Otomo** in view of **Matsuishi** and **Ota**, in further view of **Arai**.

The Examiner states, on pages 16-21 (paragraph nos. 10 and 11) of the Office Action, that claims 2 and 4 are rejected under 35 U.S.C. §103(a) as being unpatentable for obviousness over **Otomo**, in view of Anderson et al. (U.S. Patent No. 6,463,026) ("**Anderson**").

The Examiner states, on pages 21-22 (paragraph no. 12) of the Office Action, that claim 4 is rejected under 35 U.S.C. §103(a) as being unpatentable for obviousness over **Otomo** in view of **Anderson** and further in view of **Arai**.

Applicants respectfully disagree with the Examiner especially in light of this amendment.

Amended independent claim 2 now recites:

"An optical disk consisting essentially of:

a substrate including a biodegradable resin or polyolefin resin;
a recording layer provided on one side of the substrate;
a printing layer provided on the opposite side of the side of the substrate on which the recording layer is provided;
an adhesive layer provided between the substrate and the recording layer, and between the substrate and the printing layer; and
a release layer provided between the substrate and the printing layer,
wherein the recording layer and the printing layer have a base material layer including a non-hydrophilic film."

Applicants would like to emphasize that amended claim 2, among other features, now includes "an adhesive layer provided between the substrate and the recording layer and between the substrate and the printing layer". In contrast, such a feature is not disclosed or taught by **Otomo**, **Matsuishi**, **Ota**, **Arai** or **Anderson**.

Furthermore, as a result of having such an adhesive layer between the substrate and the recording layer, and between the substrate and the printing layer, the present invention can be produced by the lamination process; thereby the present invention can be easily mass-produced at a low cost. In addition, since the present invention is produced by the lamination method, heating treatment is not necessary during production process, and as a result, it is possible to prevent thermal expansion due to heat treatment, which leads to prevent warping of the substrate.

Otomo does not teach an adhesive layer provided between the substrate and the recording layer, and between the substrate and the printing layer as recited in amended claim 2. Therefore, one having ordinary skill in the art would not have been prompted by the teachings of **Otomo** to arrive at the invention according to amended independent claim 2 that includes an adhesive layer. Thus, amended independent claim 2 and dependent claim 4 are patentable over **Otomo**.

Matsuishi teaches a printable optical recording medium comprising a transparent substrate; and at least a recording layer, a reflective layer and a protective layer, a reflective layer or a protective layer and an ink-receiving layer. **Matsuishi** also teaches "intermediate layers such as a second protective layer, an adhesive layer, a pigment diffusion-preventing layer or a resilient layer can be formed between the protective layer and the ink-receiving layer, if required" (**Matsuishi**, column 8, line 65, to column 9, line 2). However, **Matsuishi** does not teach an adhesive layer provided between the substrate and the recording layer, and between the substrate and the printing layer as recited in amended claim 2. Therefore, one having

ordinary skill in the art would not have been prompted by the teachings of **Matsuishi** to arrive at the invention according to amended independent claim 2 that includes an adhesive layer. Thus, amended independent claim 2 and dependent claim 4 are patentable over **Matsuishi**.

Ota does not teach an adhesive layer provided between the substrate and the recording layer, and between the substrate and the printing layer as recited in amended claim 2. Therefore, one having ordinary skill in the art would not have been prompted by the teachings of **Ota** to arrive at the invention according to amended independent claim 2 that includes an adhesive layer. Thus, amended independent claim 2 and dependent claim 4 are patentable over **Ota**.

Arai does not teach an adhesive layer provided between the substrate and the recording layer, and between the substrate and the printing layer as recited in amended claim 2. Therefore, one having ordinary skill in the art would not have been prompted by the teachings of **Arai** to arrive at the invention according to amended independent claim 2 that includes an adhesive layer. Thus, amended independent claim 2 and dependent claim 4 are patentable over **Arai**.

Anderson teaches a removable and reusable writeable or printable label for an optical disc having low-tack adhesive system for attachment of the label to the label side of a disc. However, **Anderson** does not teach does not teach an adhesive layer provided between the substrate and the recording layer, and between the substrate and the printing layer as recited in amended claim 2. Therefore, one having ordinary skill in the art would not have been prompted by the teachings of **Anderson** to arrive at the invention according to amended independent claim 2 that includes an adhesive layer. Thus, amended independent claim 2 and dependent claim 4 are patentable over **Anderson**.

When **Otomo**, **Matsuishi** and **Ota** are combined, one having ordinary skill of the art still would not have been prompted to arrive at the invention according to amended independent claim 2 that includes an adhesive layer between the substrate and the recording layer, and between the substrate and the printing layer as recited in amended claim 2. Thus, amended independent claim 2 and dependent claim 4 are patentable over **Otomo**, **Matsuishi** and **Ota** combined.

When **Otomo**, **Matsuishi**, **Ota** and **Arai** are combined, one having ordinary skill of the art still would not have been prompted to arrive at the invention according to amended independent claim 2 that includes an adhesive layer between the substrate and the recording

layer, and between the substrate and the printing layer as recited in amended claim 2. Thus, amended independent claim 2 and dependent claim 4 are patentable over **Otomo, Matsuishi, Ota and Arai** combined.

When **Otomo** and **Anderson** are combined, one having ordinary skill of the art still would not have been prompted to arrive at the invention according to amended independent claim 2 that includes an adhesive layer between the substrate and the recording layer, and between the substrate and the printing layer as recited in amended claim 2. Thus, amended independent claim 2 and dependent claim 4 are patentable over **Otomo**, and **Anderson** combined.

When **Otomo, Anderson and Arai** are combined, one having ordinary skill of the art still would not have been prompted to arrive at the invention according to amended independent claim 2 that includes an adhesive layer between the substrate and the recording layer, and between the substrate and the printing layer as recited in amended claim 2. Thus, amended independent claim 2 and dependent claim 4 are patentable over **Otomo, Anderson and Arai** combined.

As a result, the invention according to amended claim 2 is distinguishable over **Otomo, Matsuishi, Ota, Arai and Anderson** individually or as any above-noted combinations of **Otomo, Matsuishi, Ota, Arai and Anderson**.

Applicants request that the rejection of claims 2 and 4 under 35 U.S.C. §103 for being obvious over **Otomo, Matsuishi, Ota, Arai and Anderson**, individually, or in combinations, be withdrawn.

(3) Related to Claim 14

The Examiner states, on pages 22-31 (paragraph nos. 13 and 14) of the Office Action, that claims 14 and 15 are rejected under 35 U.S.C. §103(a) as being unpatentable for obviousness over **Otomo** in view of **Matsuishi and Ota**.

The Examiner states, on pages 31-32 (paragraph no. 15) of the Office Action, that claim 15 is rejected under 35 U.S.C. §103(a) as being unpatentable for obviousness over **Otomo** in view of **Matsuishi and Ota**, and in further view of **Arai**.

The Examiner states, on pages 32-38 (paragraph nos. 16 and 17) of the Office Action, that claims 14 and 15 are rejected under 35 U.S.C. §103(a) as being unpatentable for obviousness over **Otomo** in view of **Anderson and Ota**.

The Examiner states, on page 39 (paragraph 18) of the Office Action, that claim 15 is rejected under 35 U.S.C. §103(a) as being unpatentable for obviousness over **Otomo** in view of **Anderson** and **Ota**, and further in view of **Arai**.

Applicants respectfully disagree with the Examiner especially in light of this amendment.

Amended independent claim 14 now recites:

"An optical disk consisting essentially of:

a substrate including a biodegradable resin or polyolefin resin;

a recording layer provided on one side of the substrate;

a printing layer provided on the opposite side of the side of the substrate on which the recording layer is provided;

a release layer provided between the substrate and the recording layer;

a release layer provided between the substrate and the printing layer; and

an adhesive layer provided between the substrate and the recording layer, and between the substrate and the printing layer,

wherein the recording layer and the printing layer have a base material layer including a non-hydrophilic film."

Applicants would like to emphasize that amended claim 14, among other features, now includes "an adhesive layer provided between the substrate and the recording layer, and between the substrate and the printing layer". In contrast, such a feature is not disclosed or taught by **Otomo**, **Matsuishi**, **Ota**, **Arai** or **Anderson**.

Furthermore, as a result of having such adhesive layers between the substrate and the recording layer, and between the substrate and the printing layer, the present invention can be produced by the lamination process; thereby the present invention can be easily mass-produced at a low cost. In addition, since the present invention is produced by the lamination method, heating treatment is not necessary during production process, and as a result, it is possible to prevent thermal expansion due to heat treatment, which leads to prevent warping of the substrate.

Otomo does not teach an adhesive layer provided between the substrate and the recording layer, and between the substrate and the printing layer as recited in amended claim 14. Therefore, one having ordinary skill in the art would not have been prompted by the teachings of **Otomo** to arrive at the invention according to amended independent claim 14 that includes an adhesive layer. Thus, amended independent claim 14 and dependent claim 15 are patentable over **Otomo**.

Matsuishi does not teach an adhesive layer provided between the substrate and the recording layer, and between the substrate and the printing layer as recited in amended claim 14. Therefore, one having ordinary skill in the art would not have been prompted by the teachings of **Matsuishi** to arrive at the invention according to amended independent claim 14 that includes an adhesive layer. Thus, amended independent claim 14 and dependent claim 15 are patentable over **Matsuishi**.

Ota does not teach an adhesive layer provided between the substrate and the recording layer, and between the substrate and the printing layer as recited in amended claim 14. Therefore, one having ordinary skill in the art would not have been prompted by the teachings of **Ota** to arrive at the invention according to amended independent claim 14 that includes an adhesive layer. Thus, amended independent claim 14 and dependent claim 15 are patentable over **Ota**.

Arai does not teach an adhesive layer provided between the substrate and the recording layer, and between the substrate and the printing layer as recited in amended claim 14. Therefore, one having ordinary skill in the art would not have been prompted by the teachings of **Arai** to arrive at the invention according to amended independent claim 14 that includes an adhesive layer. Thus, amended independent claim 14 and dependent claim 15 are patentable over **Arai**.

Anderson does not teach does not teach an adhesive layer provided between the substrate and the recording layer, and between the substrate and the printing layer as recited in amended claim 14. Therefore, one having ordinary skill in the art would not have been prompted by the teachings of **Anderson** to arrive at the invention according to amended independent claim 14 that includes an adhesive layer. Thus, amended independent claim 14 and dependent claim 15 are patentable over **Anderson**.

When **Otomo**, **Matsuishi** and **Ota** are combined, one having ordinary skill of the art still would not have been prompted to arrive at the invention according to amended independent claim 14 that includes an adhesive layer between the substrate and the recording layer, and between the substrate and the printing layer as recited in amended claim 14. Thus, amended independent claim 14 and dependent claim 15 are patentable over **Otomo**, **Matsuishi** and **Ota** combined.

When **Otomo**, **Matsuishi**, **Ota** and **Arai** are combined, one having ordinary skill of the art still would not have been prompted to arrive at the invention according to amended

independent claim 14 that includes an adhesive layer between the substrate and the recording layer, and between the substrate and the printing layer as recited in amended claim 14. Thus, amended independent claim 14 and dependent claim 15 are patentable over **Otomo, Matsuishi, Ota and Arai** combined.

When **Otomo, Anderson and Ota** are combined, one having ordinary skill of the art still would not have been prompted to arrive at the invention according to amended independent claim 14 that includes an adhesive layer between the substrate and the recording layer, and between the substrate and the printing layer as recited in amended claim 14. Thus, amended independent claim 14 and dependent claim 15 are patentable over **Otomo, Anderson and Ota** combined.

When **Otomo, Anderson, Ota and Arai** are combined, one having ordinary skill of the art still would not have been prompted to arrive at the invention according to amended independent claim 14 that includes an adhesive layer between the substrate and the recording layer, and between the substrate and the printing layer as recited in amended claim 14. Thus, amended independent claim 14 and dependent claim 15 are patentable over **Otomo, Anderson, Ota and Arai** combined.

As a result, the invention according to amended claim 14 is distinguishable over **Otomo, Matsuishi, Ota, Arai and Anderson** individually or as any above-noted combinations of **Otomo, Matsuishi, Ota, Arai and Anderson**.

Applicants request that the rejection of claims 14 and 15 under 35 U.S.C. §103 for being obvious over **Otomo, Matsuishi, Ota, Arai and Anderson**, individually, or in combinations, be withdrawn.

CONCLUSION

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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